

**National Health and Nutrition
Examination Survey 2003-2004**

**Documentation, Codebook,
and Frequencies**

**MEC Laboratory Component:
Lead Dust**

**Survey Years:
2003 to 2004**

**SAS Export File:
L20_C.XPT**



**First Published 2006
Last Revised: N/A**

NHANES 2003–2004 Data Documentation

Laboratory Assessment: Lab 20 – Lead Dust

Years of Coverage: 2003–2004

First Published: June 2006

Last Revised: N/A

Component Description

Lead is a known environmental toxin that has been shown to deleteriously affect the nervous, hematopoietic, endocrine, renal, and reproductive systems. In young children, lead exposure is a particular hazard because children more readily absorb lead than do adults, and children's developing nervous systems also make them more susceptible to the effects of lead. Since first measuring blood lead during the 1976–1980 survey, NHANES has been the cornerstone for lead exposure surveillance in the U.S.

In 1999, NHANES began to collect dust samples from the homes of children 1–5 years of age to be tested for the presence of lead. Lead in dust is most often the result of old, peeling, or chipping lead-based paint. As part of the household visit, NHANES interviewers collected separate dust-wipe samples from the floor and window sill of one room in the home. Signing of a special informed consent was required prior to the collection.

Eligible Sample

Eligible survey participants were households with children 1–5 years of age.

Description of Laboratory Methodology

The preparation procedure for dust-wipe sample digestion involves the quantitative transfer of the sample from the container into a beaker, and then the subsequent addition of nitric and hydrochloric acids and hot-plate heating. The procedure is described in the Appendix of the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1). The technique does not involve complete digestion of the sample, but does entail leaching of the lead (Pb) from the collected dust. Recovery of the method is based and evaluated on the results of matrix (wipe) spiked National Institute of Standards and Technology (NIST) quality control samples. The lead content of the digestate is determined by using a PerkinElmer Flame Atomic Absorption Spectrometer (FAAS) Model 5000 or 5100 for all window dust-wipe samples and a PerkinElmer Graphite Furnace Atomic Absorption Spectrometer (GFAAS) Model 5100 for all floor dust-wipe samples. However, a floor dust sample whose value was found to be 5 µg or greater by GFAAS are re-analyzed by FAAS and that value is reported.

Laboratory Quality Control and Monitoring

Additional dust samples (either window sill or floor) were taken in 5% of households as part of the quality control procedures. A field blank was also collected. Results from these quality control measures are not included as part of this data file.

For years 2003-2004, the floor samples (n=57) had a 96.6% (+/-3.2%) recovery at an average spike level of 65.41 (sd 12.74) µg. The window sill samples (n=61) revealed a 96.6% (+/-3.7%) recovery at an average spike level of 64.83 (sd 12.44) µg.

Data Processing and Editing

Detailed specimen collection instructions are discussed in the NHANES Household Interview Procedures Manual, Chapter 7. This chapter specifies the procedure to be used for preparation of the window and floor, specimen collection, labeling, and conditions for specimen transport.

Analytic Notes

This data file includes the laboratory values as well as variables related to characteristics of the room where the samples were taken, and other factors relevant to data collection.

DCDINDEX

The variable identifies the index child designated for dust collection. Descriptive data about the home environment and the dust samples were collected for one child in the household. In homes where more than one child aged 1-5 years resided, the descriptive and laboratory data for the index child were assigned to all other children in the age group.

DCDSTAT

This variable indicates which samples are available. In some households, only a single sample (either window sill or floor) was taken. This variable was derived based on final results from the laboratory.

DCD030

The room where the sample was taken was most often the same room where the child spent most of his or her time in the home. In editing this variable, some responses from the "other" category were re-coded to pre-existing categories, and additional categories were created.

DCD070A

Carpet in room selected for sample. Response categories ordering from the original question were reordered for purposes of clarification and consistency.

It is advised that this data file should be combined with additional years of data because data are available on a small subset of the survey population. This data file was designed to be used primarily at the SP level with other data collected in the MEC. Please note, data were retained for persons who took part in the household interview (including dust collection) but were not examined at the MEC.

LBXDFS

Floor sample, lead dust result ($\mu\text{g}/\text{sq ft}$), by GFAAS. All floor dust results are derived from a 1 square foot area, the size of the template used for the sample collection. If a floor sample was collected but the result is missing for LBXDFS, use LBXDFSF. Use LBDDFSLC, laboratory comment code, to determine values below the limit of detection.

LBXDFSF

Floor sample, lead dust result ($\mu\text{g}/\text{sq ft}$) by FAAS. All floor dust results are derived from a 1 square foot area, the size of the template used for the sample collection. If a floor sample was collected but the result is missing for LBXDFSF, use LBXDFS. Use LBDD3LC, laboratory comment code, to determine values below the limit of detection.

LBXDDWS

Window sill sample, lead dust result ($\mu\text{g}/\text{sq ft}$). All window sill dust results were calculated based on the measured length and width of the window sill area. Use LBDDWSLC, laboratory comment code, to determine values below the limit of detection.

References

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing. Washington, DC: United States Department of Housing and Urban Development; 1995.

Locator Fields

Title: Lead Dust

Contact Number: 1-866-441-NCHS

Years of Content: 2003–2004

First Published: June 2006

Revised: N/A

Access Constraints: None

Use Constraints: None

Geographic Coverage: National

Subject: Lead Dust

Record Source: NHANES 2003–2004

Survey Methodology: NHANES 2003–2004 is a stratified multistage probability sample of the civilian non-institutionalized population of the U.S.

Medium: NHANES Web site; SAS transport files

National Health and Nutrition Examination Survey Codebook for Data Production (2003-2004)

Lead Dust (L20_C) Person Level Data

First Published: June 2006

Last Revised: N/A



SEQN	Target
	B(1 Yrs. to 5 Yrs.)
Hard Edits	SAS Label
	Respondent sequence number
English Text: Respondent sequence number.	
English Instructions:	

DCDINDEX	Target
	B(1 Yrs. to 5 Yrs.)
Hard Edits	SAS Label
	Index child for sampling
English Text:	
English Instructions:	

Code or Value	Description	Count	Cumulative	Skip to Item
1	Index Child	927	927	
2	Other Household Child	340	1267	
.	Missing	0	1267	

DCDSTAT	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Dust sample status			
English Text:				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Floor Only	264	264	
2	Window Only	0	264	
3	Floor and Window	931	1195	
.	Missing	72	1267	

DCD030	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Room where samples taken			
English Text: Room where samples taken				
English Instructions: ENTER LOCATION OF SAMPLE				
Code or Value	Description	Count	Cumulative	Skip to Item
2	Living Room/Family Room/Den	971	971	
3	Dining Room	19	990	
4	Kitchen	23	1013	
5	Bedroom	155	1168	
7	Another room	27	1195	
.	Missing	72	1267	

DCD070A		Target		
		B(1 Yrs. to 5 Yrs.)		
Hard Edits		SAS Label		
		Room selected was floor carpeted		
English Text: Indicates whether floor was carpeted in room-floor sample				
English Instructions: ENTER ROOM CARPET CODE: CAPI EDIT: IF "NO CARPET" (CODE 2) IS SELECTED, NO OTHER CODE MAY BE SELECTED.				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	931	931	
2	No	264	1195	
.	Missing	72	1267	

DCQ070B		Target		
		B(1 Yrs. to 5 Yrs.)		
Hard Edits		SAS Label		
		Room selected had floor mat		
English Text: Indicates whether mat was found in room-floor sample				
English Instructions: ENTER ROOM CARPET CODE: CAPI EDIT: IF "NO CARPET" (CODE 2) IS SELECTED, NO OTHER CODE MAY BE SELECTED.				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	12	12	
2	No	1183	1195	
.	Missing	72	1267	

DCQ070C		Target		
		B(1 Yrs. to 5 Yrs.)		
Hard Edits		SAS Label		
		Room selected had area rug		
English Text: Indicates whether area rug was found in room-floor sample				
English Instructions: ENTER ROOM CARPET CODE: CAPI EDIT: IF "NO CARPET" (CODE 2) IS SELECTED, NO OTHER CODE MAY BE SELECTED.				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	160	160	
2	No	1035	1195	
.	Missing	72	1267	

DCQ070D		Target		
		B(1 Yrs. to 5 Yrs.)		
Hard Edits		SAS Label		
		Room selected had wall-wall carpeting		
English Text: If there was wall to wall carpet-floor sample				
English Instructions: ENTER ROOM CARPET CODE: CAPI EDIT: IF "NO CARPET" (CODE 2) IS SELECTED, NO OTHER CODE MAY BE SELECTED.				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	813	813	
2	No	382	1195	
.	Missing	72	1267	

DCQ090		Target		
		B(1 Yrs. to 5 Yrs.)		
Hard Edits		SAS Label		
		Carpet pile depth		
English Text: Depth of carpeting-floor sample				
English Instructions: ENTER CARPET PILE DEPTH:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Low pile	823	823	
2	High pile	75	898	
3	Not applicable	33	931	
.	Missing	336	1267	

DCQ160		Target		
		B(1 Yrs. to 5 Yrs.)		
Hard Edits		SAS Label		
		Surface condition for floor dust sample		
English Text: Surface condition for floor dust sample				
English Instructions: CAPI EDIT: IF "NO CARPET" (CODE 2) HAS BEEN SELECTED IN DCD.070A, DO NOT ALLOW SELECTION OF "CARPETED" (CODE 3) IN DCQ.160.				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Smooth and Cleanable	272	272	
2	Not Smooth and Cleanable	23	295	
3	Carpet	87	382	
.	Missing	885	1267	

DCQ240		Target		
		B(1 Yrs. to 5 Yrs.)		
Hard Edits		SAS Label		
		Window sill finished		
English Text: Window sill finished				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	852	852	
2	No	79	931	
.	Missing	336	1267	

DCQ250		Target		
		B(1 Yrs. to 5 Yrs.)		
Hard Edits		SAS Label		
		Surface condition for sill dust sample		
English Text: Surface condition for sill dust sample				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Smooth and Cleanable	866	866	
2	Not Smooth and Cleanable	65	931	
.	Missing	336	1267	

DCQ400	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Room cleanliness			
English Text: INTERVIEWER OBSERVATION: ROOM CLEANLINESS				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Dirtier than average	181	181	
2	Average	722	903	
3	Cleaner than average	291	1194	
.	Missing	73	1267	

DCQ410	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Room clutter			
English Text: INTERVIEWER OBSERVATION: ROOM CLUTTER				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
1	Very cluttered (nothing in place)	175	175	
2	Average amount of clutter	676	851	
3	Organized (nothing out of place)	343	1194	
.	Missing	73	1267	

LBXDFS	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Floor, GFAAS (ug/sq.ft.)			
English Text: Floor result in micrograms per square feet by graphite furnace atomic absorption spectrophotometric method.				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0.11 to 8.5	Range of Values	1123	1123	
.	Missing	144	1267	

LBXDFS	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Floor, FAAS (ug/sq. ft.)			
English Text: Floor result in micrograms per square feet by flame atomic absorption spectrophotometric method.				
English Instructions: If the floor sample result by the GFAAS method is >5 then it is measured by the FAAS method. Only the FAAS method result is reported.				
Code or Value	Description	Count	Cumulative	Skip to Item
1.1 to 126.6	Range of Values	72	72	
.	Missing	1195	1267	

LBDDWS	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Window, FAAS (ug/sq. ft.)			
English Text: Window result in micrograms per square feet by flame atomic absorption spectrophotometric method.				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0.65 to 4493.96	Range of Values	931	931	
.	Missing	336	1267	

LBDDFSLC	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Lead dust floor (GFAAS) comment code			
English Text:				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above limit of detection	958	958	
1	Below limit of detection	165	1123	
.	Missing	144	1267	

LBDD3LC	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Lead dust floor (FAAS) comment code			
English Text:				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above limit of detection	72	72	
1	Below limit of detection	0	72	
.	Missing	1195	1267	

LBDDWSLC	Target			
	B(1 Yrs. to 5 Yrs.)			
Hard Edits	SAS Label			
	Lead dust window sill comment code			
English Text:				
English Instructions:				
Code or Value	Description	Count	Cumulative	Skip to Item
0	At or above limit of detection	501	501	
1	Below limit of detection	430	931	
.	Missing	336	1267	